



Svetlana 8161R Medium-Mu Power Triode

The Svetlana™ 8161R is a high-performance ceramic/metal power triode designed for use in amplifier, oscillator, or modulator service. A modern mesh filament is used, replacing the old-fashioned hairpin construction. The improved mesh filament design ensures better mechanical rigidity and long lasting concentricity of the filament, providing enhanced linearity, less noise, reduced warm-up variation and longer life. The low-inductance, mesh-filament basket also forms a natural extension of the cylindrical stem geometry into the active area, giving superior VHF performance.

The Svetlana 8161R is manufactured in the Svetlana Electron Devices complex in St. Petersburg, Russia. Svetlana has achieved the improved performance described above with exact replacement compatibility with the 8161R manufactured in the United States.

General Characteristics

Electrical

Filament	Thoriated-tungsten mesh
Voltage	7.50 ±0.37V
Current @ 7.50V	51.5A
Amplification factor (average)	22
Direct interelectrode capacitances (grounded filament):	
Input	35.0pF
Feedback	20pF
Output	0.9pF
Maximum frequency for full ratings (CW)	120+ MHz

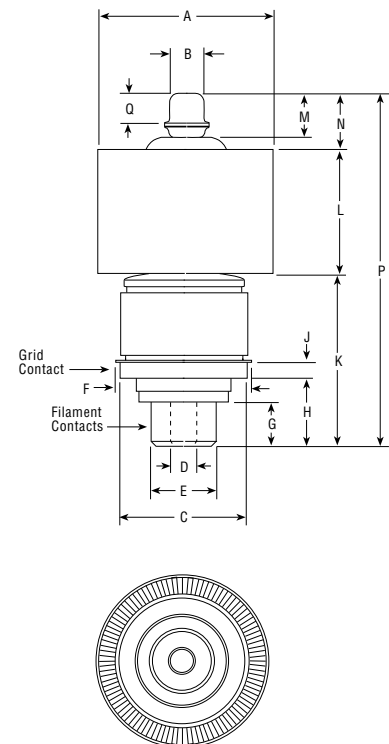
Mechanical

Cooling	Forced air
Base	Coaxial
Socketing	Via spring collets
Operating position	Vertical, Base up or down
Maximum operating temperature	250° C
Maximum dimensions:	
Length	228.60 mm (9.000 in.)
Diameter	105.56 mm (4.156 in.)
Net weight	2.8 kg (6.2 lb)

Maximum Ratings

	Plate Modulated RF Amplifier, Class C Telephony	Audio Frequency Amplifier or Modulator, Class AB2	RF Power Amplifier or Oscillator, Class C, FM or CW	
DC plate voltage	5500	6000	6000	V
DC plate current	2.0	2.5	2.5	A
Plate dissipation	2670	4000	4000	W
Grid dissipation	150	150	150	W
DC grid voltage	-1000	-1000	-1000	V
DC grid current			0.4	A

Svetlana 8161R Outline drawing



	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	103.99	105.56	4.094	4.156
B	19.83	21.44	0.781	0.844
C	75.95	76.45	2.990	3.010
D	15.62	16.13	0.615	0.635
E	37.85	38.35	1.490	1.510
F	—	92.08	—	3.625
G	20.65	23.80	0.813	0.937
H	34.92	41.28	1.375	1.625
J	9.93	10.72	0.391	0.422
K	98.43	107.95	3.875	4.250
L	74.60	77.80	2.937	3.063
N	30.15	42.85	1.187	1.687
P	203.20	228.60	8.000	9.000
Q	17.45	20.65	0.687	0.813



Svetlana 8161R Medium-Mu Power Triode



Typical Operation

RF Power Amplifier or Oscillator, Class C FM or CW (Frequencies to 110MHz)

DC plate voltage	4000	5000	6000	V
DC plate current	2.5	2.5	2.08	A
DC grid voltage*	-300	-450	-500	V
DC grid current*	245	265	180	V
Peak RF grid voltage*	580	750	765	V
Driving Power*	142	197	136	W
Grid dissipation*	68	78	46	W
Plate input power	10,000	12,500	12,500	W
Plate dissipation	2500	2500	2500	W
Plate output power	7500	10,000	10,000	W

*Approximate values

Plate Modulated RF Amplifier, Class C Telephony (Frequencies to 30MHz)

DC plate voltage	4000	4500	5000	V
DC plate current	1.67	1.47	1.25	A
DC grid voltage	-450	-500	-550	V
DC grid current*	180	140	150	mA
Peak RF grid voltage*	685	715	760	V
Driving power	125	100	115	W
Grid dissipation*	43	30	32	W
DC plate input power	6670	6615	6250	W
Plate dissipation	1670	1315	950	W
Plate output power	5000	5300	5300	W

Audio Frequency Amplifier or Modulator, Class AB₂

Maximum Ratings (per tube)

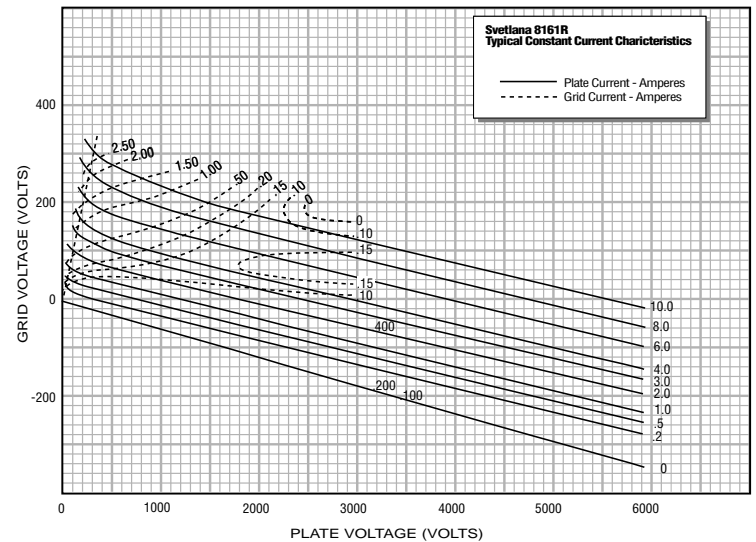
DC plate voltage	6000	V
DC plate current	2.5	A
Plate dissipation	4000	W
Grid dissipation	150	W
DC grid voltage	-1000	V

Typical Operation (two tubes sinusoidal waveform)

DC plate voltage	4000	5000	6000	V
Zero-signal DC plate current*	0.6	0.5	0.4	A
Maximum-signal DC plate current	4.0	3.2	3.0	A
DC grid voltage**	-150	-190	-240	V
Peak AF grid voltage (per tube)*	340	360	390	V
Maximum-signal peak driving power*	340	230	225	W
Maximum-signal nominal driving power*	170	115	113	W
Load resistance, plate-to-plate	2200	3600	4650	Ohms
Maximum-signal plate output power	11,000	11,000	13,000	W

*Approximate values

**Adjust to give stated zero-signal plate current



Base-to-Anode Air Flow

Anode Dissipation Watts	Sea Level		5000 Feet	
	Air Flow CFM	Pressure Drop Inches of Water	Air Flow CFM	Pressure Drop Inches of Water
2500	36	0.6	43	0.72
4000	67	1.20	80	1.45

Anode-to-Base Air Flow¹

Anode Dissipation Watts	Sea Level		5000 Feet	
	Air Flow CFM	Pressure Drop Inches of Water	Air Flow CFM	Pressure Drop Inches of Water
2500	42	0.70	50	0.84
4000	84	1.70	101	2.00

¹ When air is supplied in the anode-to-base direction, a minimum of 3 cfm must be directed into the filament-stem structure between the inner and outer filament terminals to maintain the base seals below 250° C. A separate air system is not required with base-to-anode airflow.